

# Notice of Allowability

Application No.

10/031,840

Examiner

Krishnan S Menon

Applicant(s)

WOBBEN, ALOYS

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment of 8/9/04.
2. ☒ The allowed claim(s) is/are 1-11 and 13-17; RENUMBERED 1-16.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☒ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☒ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### **DETAILED ACTION**

Claims 1-17 are pending.

#### ***Election/Restrictions***

Restriction is required under 35 U.S.C. 121 and 372.

This application as amended contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-11 and 13-17, drawn to a system for desalination or method of desalination.

Group II, claim(s) 12, drawn to a pressure compensation device.

The invention of Group II, claim 12, relates to the the invention of Group I through the special technical feature 'pressure compensation device for transferring energy'. The special technical feature of claim 12, pressure compensation device for transferring energy, which is shown by the prior art Keefer'056, an X reference, to lack novelty or inventive step and thus does not define a contribution over the prior art.

Since applicant has received an action on the merits for the originally presented invention of Group I, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 12 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ms. Susan Betcher on 9/10/04. Accordingly, claim 12 was cancelled and claims 1 and 6 were amended as follows to make them in condition for allowance.

The application has been amended as follows:

The Specification was amended by adding following sentence as the first sentence of the Specification:

- - This application is a 35 USC 371 (National Stage) of PCT/EP00/02417, filing date 03/18/2000, which claims priority over the German Application No. 199 33 147.2, filing date 07/20/1999. - -

Claims 1 and 6 were amended, the listing of claims start on fresh page:

**Listing of Claims:**

1. (Currently Amended) A method for desalting water, comprising:

salt water is introduced into a membrane module and is separated into desalted water and concentrated salt water;

the salt water is conveyed at an increased pressure level from the pressure-compensating device, which comprises several piston devices, to the membrane module;

the concentrated salt water is discharged from the pressure-compensating device, transferring its pressure energy in the process;

salt water is introduced into the pressure-compensating device at a pressure level by means of a feed pump;

in front of the piston, the piston devices contain an intake chamber, which is connected to the feed pump and the membrane module, and in the rear of the piston they contain a discharge chamber, which is connected to the membrane module and a discharge line for concentrated salt water; and

the pressure chambers of each piston device are fluidly connected by a single pre-charged hydraulic connecting line, the pre-charged hydraulic connecting line in combination with the pressure chambers forms a closed fluid system of preset pressure acting on the pistons during operation a continuous, preset, identical pressure is exerted on a part of the piston by means of a single hydraulic connection between,  
the pressure chambers which are located at the piston rear sides of the piston devices,

to assist the pressure level, which is exerted on the piston by the concentrated salt water that has been introduced into the discharge chambers.

2. (Previously Presented) The method according to claim 1, wherein concentrated salt water alternately is introduced into the discharge chamber of one of several piston devices, whereby simultaneously the salt water conveyed from the intake chamber of a first piston device to the membrane module, and in that simultaneously salt water at the same pressure level is introduced into the intake chamber of a second piston device, whereby the concentrated salt water is discharged at a low pressure level from the discharge chamber of the first piston device.

3. (Previously Presented) The method according to claim 2, wherein the piston devices of the pressure-compensating device are controlled in such a manner that simultaneously salt water is introduced into the intake chamber of at least one of a first piston device, concentrated salt water is discharged from the discharge chamber of the first piston device, concentrated salt water is introduced into the discharge chamber of at least a second piston device, and salt water is conveyed from the intake chamber of the second piston device into the membrane device.

4. (Original) The method according to claim 1, characterized in that the piston devices are regulated by controllable intake- and discharge valves.

5. (Original) The method according to claim 1, wherein the pressure exerted on a part of the piston is a continuous pressure.

6. (Currently Amended) A reverse osmosis device for the continuous desalting of water, in particular for the desalting of sea water, comprising:

a membrane module to separate supplied salt water into desalted water and concentrated salt water;

a pressure-compensating device, comprising several piston devices, to continuously introduce the salt water at an increased pressure level into the membrane module and to discharge the concentrated salt water, transferring its pressure energy in the process,

a feed pump to introduce salt water at a pressure level into the pressure-compensating device, whereby

in front of the piston, the piston devices possess an intake chamber, which is connected to the feed pump and the membrane module, and

in the rear of the piston, the piston devices possess a discharge chamber, which is connected to the membrane module and to a discharge line for concentrated salt water,

in the rear of the piston, the piston devices additionally possess a pressure chamber and the pressure chambers of each piston device are fluidly connected by a single pre-charged hydraulic connecting line, the pre-charged hydraulic connecting line in combination with the pressure chambers forms a closed fluid system of preset pressure acting on the pistons ~~the pressure chambers are hydraulically connected to each other by a single hydraulic connecting line, so that during operation a continuous, preset, identical pressure can be exerted on a part of the piston to assist~~

~~the pressure, which is exerted on the piston by the concentrated salt water introduced into the discharge chamber.~~

7. (Previously Presented) The device according to claim 6, wherein the piston devices are controlled in such a manner that simultaneously salt water is introduced into the intake chamber of at least one piston device, concentrated salt water is discharged from the discharge chamber of the same piston device, concentrated salt water is introduced into the discharge chamber of at least one other piston device, and salt water is conveyed from the intake chamber of the same piston device to the membrane module.

8. (Original) The device according to claim 6, wherein the piston devices are regulated by controllable intake- and discharge valves.

9. (Original) The device according to claim 7, wherein the connecting lines from the membrane module to the discharge chambers of the piston devices, and the lines to discharge concentrated salt water from the discharge chambers are provided with actively controlled valves.

10. (Previously Presented) The device according to one of claim 6, wherein the pressure-compensating device contains three identical piston devices.

11. (Previously Presented) The device according to one of claim 6, wherein the pistons of the piston devices are designed in such a manner that the

pressure level prevailing in the pressure chamber can act upon one quarter of the surface area of the piston rear side and the pressure level prevailing in the discharge chamber can act upon three quarters of the surface area of the piston rear side.

12. (Canceled)

13. (Previously Presented) A system for the continuous desalting of water, comprising:

a membrane module to separate supplied salt water into desalted water and concentrated salt water;

a pressure-compensating device comprising a plurality of piston devices, each piston device includes a piston, an intake chamber, a discharge chamber and a pressure chamber, the intake chamber is fluidly connected to a feed pump and the membrane module, the discharge chamber is fluidly connected to the membrane module and to a discharge line for discharging concentrated salt water, the pressure chambers of each piston device are fluidly connected by a single pre-charged hydraulic connecting line, the pre-charged hydraulic connecting line in combination with the pressure chambers forms a closed fluid system of preset pressure acting on the pistons; and

a feed pump to introduce salt water at a pressure level into the pressure-compensating device.

14. (Previously Presented) The device according to claim 13, wherein the piston devices are controlled in such a manner that simultaneously salt



water is introduced into the intake chamber of at least one piston device, concentrated salt water is discharged from the discharge chamber of the same piston device, concentrated salt water is introduced into the discharge chamber of at least one other piston device, and salt water is conveyed from the intake chamber of the same piston device to the membrane module.

15. (Previously Presented) The device according to claim 13, wherein the piston devices are regulated by controllable intake- and discharge valves.

16. (Previously Presented) The device according to claim 14, wherein connecting lines from the membrane module to the discharge chambers of the piston devices, and lines to discharge concentrated salt water from the discharge chambers are provided with actively controlled valves.

17. (Previously Presented) The device according to one of claim 13, wherein the pressure-compensating device contains three identical piston devices.

***Allowable Subject Matter***

Claims 1-11 and 13-17 are allowed.

The following is an examiner's statement of reasons for allowance:

The closest reference is Keefer'056 which teaches a method for desalting water and a device for desalting water as claimed in the independent claims 1,6 and 13, except for the element "the pressure chambers of each piston device are fluidly connected by a single pre-charged hydraulic connecting line, the pre-charged connecting line in combination with the pressure chambers form a closed fluid system of preset pressure acting on the piston". The line 249 in Keefer fig 1 can be considered as a single line connecting the piston chambers of each of the pistons, but it is not a pre-charged hydraulic line and it does not provide same preset pressure to all the pistons as required by said element. It is also not obvious to one of ordinary skill in the art to arrive at this structure of the apparatus and a process of using such an apparatus because this structure is novel and not found singly or in combination with any other reference in the analogous arts. Rest of the claims depend from these claims, and are therefore, allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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